

**WHAT IS CLAIMED IS:**

1. An automatic toilet seat cleaning unit comprising; a cabinet adapted to receive a toilet seat in a stowed position, an electric operating means operatively connected to the toilet seat, and a cleaning means, to clean the toilet seat when the seat is or has been stowed by the electric operating means wherein the cabinet includes at least one door adapted to open to allow the toilet seat to be received in the stowed position.

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2. An automatic toilet seat cleaning unit as claimed in claim 1, wherein the unit includes a control unit to control the cleaning and or seat movement.

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3. An automatic toilet seat cleaning unit as claimed in claim 2, wherein the control unit is a PLC or PC board.

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4. An automatic toilet seat cleaning unit as claimed in claim 3, wherein the cabinet can be rebated into a wall of a public toilet

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5. An automatic toilet seat cleaning unit as claimed in claim 4, wherein the cabinet can be rebated into a wall of a public toilet wherein the public toilet has a service bay having the cabinet located therein.

6. An automatic toilet seat cleaning unit as claimed in claim 5 wherein the cleaning means comprises at least one spray means located inside the cabinet.

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7. An automatic toilet seat cleaning unit as claimed in claim 6 wherein the cleaning means can be located near the top face of the toilet seat with a second cleaning means being located near the bottom face of the seat.

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8. An automatic toilet seat cleaning unit as claimed in claim 7 wherein the cleaning means is a fluid.

9. An automatic toilet seat cleaning unit as claimed in claim 8 wherein the electric operating means utilises extra low voltage to operate.

5 10. An automatic toilet seat cleaning unit as claimed in claim 9 wherein the unit comprises a shaft connecting the back of the toilet seat to the sides of the cabinet, a lever pivotally connected to a first chain and a first motor connected to said lever and operable to move the seat up/down, a switch to detect when the seat is in an up position, the electric operating means providing a power supply to the first motor, the first motor providing an electrical output to control the moveable seat from a down to an up position, the first motor also providing a reverse polarity output to control the seat from an up to a down position and a solenoid valve to control at least one water spray jet.

15 11. An automatic toilet seat cleaning unit as claimed in claim 10 wherein the unit includes a spring loaded clutch to allow the toilet seat to be moved manually.

20 12. An automatic toilet seat cleaning unit as claimed in claim 9 wherein the unit comprises a carriage connecting the back of the toilet seat to rails connecting to the sides of the cabinet, the carriage slidably connecting to the rails, the electric operating means providing an electrical output to a first motor, a first chain and first motor connected to said carriage and operable to move the seat up/down, a switch to detect when the seat is in an up position, the first motor providing an electrical output controlling the moveable seat from a down to an up position, and the first motor also providing a reverse polarity output to control the seat from an up to a down position, a solenoid valve to control at least one water spray jet, the seat is operatively connected to the carriage which travels up the pair of rails allowing the seat to be pulled backwards as well as upwards into its position inside the cabinet.

25 30 13. An automatic toilet seat cleaning unit as claimed in claim 10 or 12 wherein a second chain is connected to said door, a drum connected to a second motor and operable to move the door up/down, the electrical operating means providing an

electrical output to the second motor, a switch to detect when the door is in an open position, the second motor having an electrical output to control the door from an up to a down position, and the motor having a reverse polarity output to control the door from a down to an up position.

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14. An automatic toilet seat cleaning unit as claimed in claim 13 wherein the second motor has the second chain connected to the door wherein in operation the second chain coils around drum it raises the door into the open position, when the door open switch is reached the first motor drives the drum which is mounted on the outside of cabinet, the first chain which goes around a pulley located at the back bottom corner of the cabinet and is connected to the lever so when the first motor operates the chain coils around the drum pulling on lever which rotates the axle which the seat is attached to causing the seat to tilt up into the cabinet, once the seat reaches the up unit switch, the second motor is reversed to uncoil the chain from drum causing the door to close.

15. An automatic toilet seat cleaning unit as claimed in claim 14 wherein the second motor drives the drum which is supported on each side of the cabinet wherein the second chain being attached to the door, as the drum revolves the second chain is wound up around the drum lifting up the door, once the door meets a door up switch, the first motor is activated, the first motor being connected to another shaft or drum which is supported on each side of the cabinet wherein the first chain being attached to the seat carriage, as the drum revolves, the first chain is wound up around the said another drum pulling the seat and carriage up the rails.

20. An automatic toilet seat cleaning unit as claimed in claim 14 or 15 wherein the door can be closed by gravity.

25. An automatic toilet seat cleaning unit as claimed in claim 16 wherein the unit includes a dryer apparatus which includes a fan which directs air into the cabinet to dry the seat.

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18. An automatic toilet seat cleaning unit as claimed in claim 17 wherein the dryer apparatus includes a plenum having an air exit means shaped to create an air knife effect when being used to dry the seat.
- 5 19. An automatic toilet seat cleaning unit as claimed in claim 18 wherein the unit includes a seat request button to activate a motor to raise the door while drying the seat before it is lowered ready for use.
- 10 20. A method of operating an automatic toilet seat cleaning unit wherein the unit comprises a cabinet adapted to receive a toilet seat in an up position, a cleaning means to clean a toilet seat when the seat is within said cabinet, at least one door located on the cabinet and a seat request activation means, the door being adapted to open to allow the toilet seat to be received into the up position, the unit door being closed or lowered with the seat raised within the cabinet; the method including:
  - pressing seat request activation means, to use the seat;
  - door opens or is raised;
  - seat dropping to a lowered or ready to be used position;
  - closing or lowering the door;
  - after use, raising the door;
  - moving the seat to be within the cabinet;
  - closing door;
  - cleaning means cleans seat.
- 15 21. The method of claim 20 wherein while lifting the door, a drying apparatus dries the seat before being lowered ready for use.
- 20 22. The method of claim 21 wherein the cleaning means includes washing the seat.
- 25 23. The method of claim 22 wherein after use of the seat, pressing a toilet door opening button to operatively driving the unit door to be raised and open ready to receive the seat.